

5

CLAIMS

1. An isolated nucleic acid selected from the group consisting of:
 - a) SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6 SEQ ID NO: 8, or SEQ ID NO:10;
 - 10 b) a nucleic acid sequence encoding amino acid SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO: 9 or SEQ ID NO: 11;
 - c) a complementary nucleic acid sequence of SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO: 8, or SEQ ID NO:10; and
 - 15 d) a nucleic acid sequence comprising at least 50 nucleotides which hybridizes under stringent conditions to SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO: 8, or SEQ ID NO:10..
2. The isolated nucleic acid of Claim 1 which is DNA.
- 20 3. The isolated nucleic acid of Claim 1 which is RNA.
4. An expression vector containing the nucleic acid of Claim 1.
5. A host cell containing the vector of Claim 4.
- 25 6. The host cell of Claim 5 which is a eukaryotic cell.
7. The host cell of Claim 6 which is a human cell.
- 30 8. The host cell of Claim 5 which is a prokaryotic cell.

- 5 9. Isolated DNA or RNA comprising at least 50 consecutive nucleotides of:
- a) SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, or SEQ ID NO:10; or
 - b) a complementary nucleic acid sequence of: SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, or SEQ ID NO:10.
- 10 10. An isolated nucleic acid which hybridizes to the DNA or RNA of Claim 9 under high stringency conditions.
11. An expression vector containing the DNA or RNA of Claim 9.
- 15 12. A host cell containing the vector of Claim 11.
13. The host cell of Claim 5 which is a eukaryotic cell.
- 20 14. The host cell of Claim 6 which is a human cell.
15. The host cell of Claim 5 which is a prokaryotic cell.
- 25 16. An isolated amino acid sequence comprising SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9 or SEQ ID NO: 11.
17. An isolated amino acid sequence encoded by 50 or more consecutive nucleotides of SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, or SEQ ID NO:10.
- 30

- 5 18. An isolated polypeptide having 80% or greater sequence identity to the amino acid sequence according to Claim 16.
19. An amino acid sequence comprising at least 20 or more consecutive residues of a sequence according to Claim 16.
- 10 20. A polynucleotide comprising at least 15 consecutive nucleotides of any of the nucleic acids of Table 5, wherein the 15 consecutive nucleotides include a single nucleotide polymorphic site selected from Table 5.
- 15 21. An isolated variant of SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, or SEQ ID NO:10, wherein the variation contains one or more SNPs from Table 5.
22. A polypeptide encoded by a nucleic acid sequence according to Claim 21.
- 20 23. An antibody or antibody fragment which binds to an amino acid sequence of Claim 16.
24. An antibody or antibody fragment which binds to an amino acid sequence of Claim 17.
- 25 25. An antibody or antibody fragment which binds to a polypeptide of Claim 18.
26. An antibody or antibody fragment which binds to an amino acid sequence of Claim 19.
- 30

- 5 27. An isolated nucleic acid fragment comprising at least 15 consecutive nucleotide bases of BAC RP11-0702C13 of SEQ ID NO:1.
28. A method of identifying and obtaining a human chromosome 12q23-qter gene or a homolog in a mammal, comprising the steps of:
- 10 a) preparing a sample of cells or tissue of the mammal;
- b) probing the tissue or cell with all or a portion of a human chromosome 12q23-qter nucleic acid under conditions wherein hybridized DNA can be produced;
- c) identifying the hybridized DNA; and
- 15 d) cloning and sequencing the hybridized DNA to obtain and identify the human chromosome 12q23-qter gene or homolog in the mammal, wherein, the human chromosome 12q23-qter gene or homolog is obtained.
29. A method of treating a chromosome 12 disorder comprising administering a molecule which binds an endogenous analog of Gene 214.
- 20 30. A method of treating a chromosome 12 disorder comprising administering a compound which is an agonist or an antagonist of a polynucleotide selected from the group consisting of: SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, or SEQ ID NO:10, a variant and fragment thereof.
- 25 31. The method of Claim 29 wherein the antagonist is an antibody or an antibody fragment.
- 30 32. A kit for detecting chromosome 12 disorder in a biological sample comprising a probe containing a nucleic acid sequence of Claim 1 and hybridization reagents.

33. A method of diagnosing an individual with a chromosome 12 disorder comprising:

- add
a1

Add
C1